

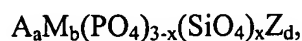
AMENDMENTS TO THE CLAIMS:

This listing of Claims will replace all prior versions, and listings, of Claims in the Application:

Listing of Claims.

1-180 (CANCELLED)

181 (NEW): An electrode active material represented by the general formula:



wherein,

- (a) A is selected from the group consisting of Li, Na, K, and mixtures thereof, and $0 < a \leq 8$;
- (b) M comprises one or more metals, wherein at least one of the one or more metals is capable of undergoing oxidation to a higher valence state, and $1 \leq b \leq 3$;
- (c) $0 < x < 3$; and
- (d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$;

wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material.

182 (NEW): The electrode active material according to Claim 181, wherein A is Li.

183 (NEW): The electrode active material according to Claim 181, wherein $a = 3 + 2x + d$.

184 (NEW): The electrode active material according to Claim 181, wherein a is 0.1 to about 6.

185 (NEW): The electrode active material according to Claim 181, wherein a is from about 2 to about 6.

186 (NEW): The electrode active material according to Claim 181, wherein a is from about 3 to about 6.

187 (NEW): The electrode active material according to Claim 181, wherein M comprises a transition metal selected from Groups 4 to 11 of the Periodic Table.

188 (NEW): The electrode active material according to Claim 187, wherein M is a +3 oxidation state transition metal selected from Groups 4 to 11 of the Periodic Table.

189 (NEW): The electrode active material according to Claim 187, wherein M is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

190 (NEW): The electrode active material according to Claim 181, wherein M is M'M'', wherein M' is at least one transition metal selected from Groups 4 to 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table.

191 (NEW): The electrode active material according to Claim 190, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

192 (NEW): The electrode active material according to Claim 191, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

193 (NEW): The electrode active material according to Claim 191, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

194 (NEW): The electrode active material according to Claim 191, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

195 (NEW): The electrode active material according to Claim 190, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

196 (NEW): The electrode active material according to Claim 181, wherein Z comprises F.

197 (NEW): The electrode active material according to Claim 181, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

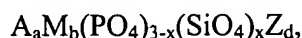
198 (NEW): The electrode active material according to Claim 181, wherein d is from 0.1 to about 6.

199 (NEW): The electrode active material according to Claim 181, wherein d is from about 2 to about 6

200 (NEW): The electrode active material according to Claim 181, wherein d is from about 3 to about 6.

201 (NEW): A battery, comprising:

a first electrode comprising electrode active material represented by the general formula:



wherein,

- (a) A is selected from the group consisting of Li, Na, K, and mixtures thereof, and $0 < a \leq 8$;
- (b) M comprises one or more metals, wherein at least one of the one or more metals is capable of undergoing oxidation to a higher valence state, and $1 \leq b \leq 3$;
- (c) $0 < x < 3$; and
- (d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$; wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material.

the battery further comprising a second electrode which is a counter-electrode to the first electrode; and
an electrolyte.

202 (NEW): The battery according to Claim 201, wherein A is Li.

203 (NEW): The battery according to Claim 201, wherein $a = 3 + 2x + d$.

204 (NEW): The battery according to Claim 201, wherein a is 0.1 to about 6.

205 (NEW): The battery according to Claim 201, wherein a is from about 2 to about 6.

206 (NEW): The battery according to Claim 201, wherein a is from about 3 to about 6.

207 (NEW): The battery according to Claim 201, wherein M comprises a transition metal selected from Groups 4 to 11 of the Periodic Table.

208 (NEW): The battery according to Claim 207, wherein M is a +3 oxidation state transition metal selected from Groups 4 to 11 of the Periodic Table.

209 (NEW): The battery according to Claim 207, wherein M is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

210 (NEW): The battery according to Claim 201, wherein M is M'M'', wherein M' is at least one transition metal selected from Groups 4 to 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table.

211 (NEW): The battery according to Claim 210, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

212 (NEW): The battery according to Claim 211, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

213 (NEW): The battery according to Claim 211, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

214 (NEW): The battery according to Claim 213, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

215 (NEW): The battery according to Claim 210, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

216 (NEW): The battery according to Claim 201, wherein Z comprises F.

217 (NEW): The battery according to Claim 201, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

218 (NEW): The battery according to Claim 201, wherein d is from 0.1 to about 6.

219 (NEW): The battery according to Claim 201, wherein d is from about 2 to about 6

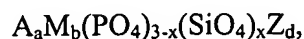
220 (NEW): The battery according to Claim 201, wherein d is from about 3 to about 6.

221 (NEW): The battery according to Claim 201, wherein the second electrode comprises a material selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

222 (NEW): The battery according to Claim 221, wherein the electrolyte comprises a solvent selected from the group consisting of dimethyl carbonate, diethyl carbonate, dipropylcarbonate, ethyl methyl carbonate, butylene carbonate, γ -butyrolactone, triglyme, tetraglyme, a lactone, an ester, dimethylsulfoxide, dioxolane, sulfolane, and mixtures thereof.

223 (NEW): The battery according to Claim 222, wherein the electrolyte further comprises a lithium salt selected from the group consisting of LiAsF_6 , LiPF_6 , LiClO_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiAlCl_4 , LiBr , and mixtures thereof.

224 (NEW): An electrode active material represented by the general formula:



wherein,

- (a) A is selected from the group consisting of Li, Na, K, and mixtures thereof, and $0 < a \leq 8$;
- (b) M comprises two or more transition metals selected from Groups 4 through 11 of the Periodic Table, and $1 \leq b \leq 3$;
- (c) $0 \leq x \leq 3$; and
- (d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$;

wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material.

225 (NEW): The electrode active material according to Claim 224, wherein A is Li.

226 (NEW): The electrode active material according to Claim 224, wherein a is 0.1 to about 6.

227 (NEW): The electrode active material according to Claim 224, wherein a is from about 2 to about 6.

228 (NEW): The electrode active material according to Claim 224, wherein a is from about 3 to about 6.

229 (NEW): The electrode active material according to Claim 224, wherein M consists of two transition metals selected from Groups 4 through 11 of the Periodic Table.

230 (NEW): The electrode active material according to Claim 229, wherein M is consists of two transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

231 (NEW): The electrode active material according to Claim 224, wherein M comprises two or more transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

232 (NEW): The electrode active material according to Claim 224, wherein $0 < x < 3$.

233 (NEW): The electrode active material according to Claim 224, wherein $x = 0$.

234 (NEW): The electrode active material according to Claim 224, wherein $x = 3$.

235 (NEW): The electrode active material according to Claim 224, wherein Z comprises F.

236 (NEW): The electrode active material according to Claim 224, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

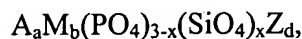
237 (NEW): The electrode active material according to Claim 224, wherein d is from 0.1 to about 6.

238 (NEW): The electrode active material according to Claim 224, wherein d is from about 2 to about 6

239 (NEW): The electrode active material according to Claim 224, wherein d is from about 3 to about 6.

240 (NEW): A battery, comprising:

a first electrode comprising an electrode active material represented by the general formula:



wherein,

- (a) A is selected from the group consisting of Li, Na, K, and mixtures thereof, and $0 < a \leq 8$;
- (b) M comprises two or more transition metals selected from Groups 4 through 11 of the Periodic Table, and $1 \leq b \leq 3$;
- (c) $0 \leq x \leq 3$; and
- (d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$; wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the battery;

the battery further comprising a second electrode which is a counter-electrode to the first electrode; and
an electrolyte.

241 (NEW): The battery according to Claim 240, wherein A is Li.

242 (NEW): The battery according to Claim 240, wherein a is 0.1 to about 6.

243 (NEW): The battery according to Claim 240, wherein a is from about 2 to about 6.

244 (NEW): The battery according to Claim 240, wherein a is from about 3 to about 6.

245 (NEW): The battery according to Claim 240, wherein M consists of two transition metals selected from Groups 4 through 11 of the Periodic Table.

246 (NEW): The battery according to Claim 245, wherein M is consists of two transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

247 (NEW): The battery according to Claim 240, wherein M comprises two or more transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

248 (NEW): The battery according to Claim 247, wherein M comprises two or more transition metals selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

249 (NEW): The battery according to Claim 240, wherein $0 < x < 3$.

250 (NEW): The battery according to Claim 240, wherein $x = 0$.

251 (NEW): The battery according to Claim 240, wherein $x = 3$.

252 (NEW): The battery according to Claim 240, wherein Z comprises F.

253 (NEW): The battery according to Claim 240, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

254 (NEW): The battery according to Claim 240, wherein d is from 0.1 to about 6.

255 (NEW): The battery according to Claim 240, wherein d is from about 2 to about 6

256 (NEW): The battery according to Claim 240, wherein d is from about 3 to about 6.

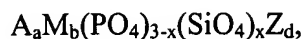
257 (NEW): The battery according to Claim 240, wherein the second electrode comprises a material selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

258 (NEW): The battery according to Claim 257, wherein the electrolyte comprises a solvent selected from the group consisting of dimethyl carbonate, diethyl carbonate, dipropylcarbonate, ethyl methyl carbonate, butylene carbonate, γ -butyrolactone, triglyme, tetraglyme, a lactone, an ester, dimethylsulfoxide, dioxolane, sulfolane, and mixtures thereof.

259 (NEW): The battery according to Claim 258, wherein the electrolyte further comprises a lithium salt selected from the group consisting of LiAsF_6 , LiPF_6 , LiClO_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiAlCl_4 , LiBr , and mixtures thereof.

260 (NEW): A battery, comprising:

a first electrode comprising an electrode active material represented by the general formula:



wherein,

(a) A is selected from the group consisting of Li, Na, K, and mixtures thereof,

$$0 < a \leq 8;$$

(b) M comprises M'M'', wherein M' is at least one transition metal selected from Groups 4 through 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table, and $1 \leq b \leq 3$;

(c) $0 \leq x \leq 3$; and

(d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$; wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material;

the battery further comprising a second electrode which is a counter-electrode to the first electrode; and

an electrolyte.

261 (NEW): The battery according to Claim 260, wherein A is Li.

262 (NEW): The battery according to Claim 260, wherein a is 0.1 to about 6.

263 (NEW): The battery according to Claim 260, wherein a is from about 2 to about 6.

264 (NEW): The battery according to Claim 260, wherein a is from about 3 to about 6.

265 (NEW): The battery according to Claim 260, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

266 (NEW): The battery according to Claim 265, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

267 (NEW): The battery according to Claim 265, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

268 (NEW): The battery according to Claim 267, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

269 (NEW): The battery according to Claim 260, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

270 (NEW): The battery according to Claim 260, wherein M consists of M'M'', wherein M' is at least one transition metal selected from Groups 4 through 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table

271 (NEW): The battery according to Claim 270, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

272 (NEW): The battery according to Claim 271, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

273 (NEW): The battery according to Claim 271, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

274 (NEW): The battery according to Claim 273, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

275 (NEW): The battery according to Claim 270, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

276 (NEW): The battery according to Claim 260, wherein $0 < x < 3$.

277 (NEW): The battery according to Claim 260, wherein $x = 0$.

278 (NEW): The battery according to Claim 260, wherein $x = 3$.

279 (NEW): The battery according to Claim 260, wherein Z comprises F.

280 (NEW): The battery according to Claim 260, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

281 (NEW): The battery according to Claim 260, wherein d is from 0.1 to about 6.

282 (NEW): The battery according to Claim 260, wherein d is from about 2 to about 6

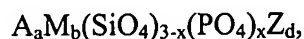
283 (NEW): The battery according to Claim 260, wherein d is from about 3 to about 6.

284 (NEW): The battery according to Claim 260, wherein the second electrode comprises a material selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

285 (NEW): The battery according to Claim 284, wherein the electrolyte comprises a solvent selected from the group consisting of dimethyl carbonate, diethyl carbonate, dipropylcarbonate, ethyl methyl carbonate, butylene carbonate, γ -butyrolactone, triglyme, tetraglyme, a lactone, an ester, dimethylsulfoxide, dioxolane, sulfolane, and mixtures thereof.

286 (NEW): The battery according to Claim 285, wherein the electrolyte further comprises a lithium salt selected from the group consisting of LiAsF_6 , LiPF_6 , LiClO_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiAlCl_4 , LiBr , and mixtures thereof.

287 (NEW): An electrode active material represented by the general formula:



wherein,

- (a) A is selected from the group consisting of Li, Na, K, and mixtures thereof, $0 < a \leq 8$, and $a = 3 + 2x + d$;
- (b) M comprises one or more metals, wherein at least one of the one or more metals is capable of undergoing oxidation to a higher valence state, and $1 \leq b \leq 3$;
- (c) $0 \leq x \leq 3$; and
- (d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$;

wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material.

288 (NEW): The electrode active material according to Claim 287, wherein A is Li.

289 (NEW): The electrode active material according to Claim 287, wherein a is 0.1 to about 6.

290 (NEW): The electrode active material according to Claim 287, wherein a is from about 2 to about 6.

291 (NEW): The electrode active material according to Claim 287, wherein a is from about 3 to about 6.

292 (NEW): The electrode active material according to Claim 287, wherein M comprises two or more transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

293 (NEW): The electrode active material according to Claim 287, wherein M is M'M'', wherein M' is at least one transition metal selected from Groups 4 through 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table.

294 (NEW): The electrode active material according to Claim 293, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

295 (NEW): The electrode active material according to Claim 294, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

296 (NEW): The electrode active material according to Claim 294, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

297 (NEW): The electrode active material according to Claim 296, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

298 (NEW): The electrode active material according to Claim 293, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

299 (NEW): The electrode active material according to Claim 287, wherein $0 < x < 3$.

300 (NEW): The electrode active material according to Claim 287, wherein $x = 0$.

301 (NEW): The electrode active material according to Claim 287, wherein $x = 3$.

302 (NEW): The electrode active material according to Claim 287, wherein Z comprises F.

303 (NEW): The electrode active material according to Claim 287, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

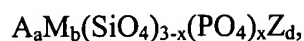
304 (NEW): The electrode active material according to Claim 287, wherein d is from 0.1 to about 6.

305 (NEW): The electrode active material according to Claim 287, wherein d is from about 2 to about 6

306 (NEW): The electrode active material according to Claim 287, wherein d is from about 3 to about 6.

307 (NEW): A battery, comprising:

a first electrode comprising an electrode active material represented by the general formula:



wherein,

(a) A is selected from the group consisting of Li, Na, K, and mixtures thereof,

$$0 < a \leq 8, \text{ and } a = 3 + 2x + d;$$

(b) M comprises one or more metals, wherein at least one of the one or more metals is capable of undergoing oxidation to a higher valence state, and

$$1 \leq b \leq 3;$$

(c) $0 \leq x \leq 3$; and

(d) Z is selected from the group consisting of a hydroxyl, a halogen, and mixtures thereof, and $0 < d \leq 6$; wherein A, M, Z, a, b, x and d are selected so as to maintain electroneutrality of the electrode active material;

the battery further comprising a second electrode which is a counter-electrode to the first electrode; and

an electrolyte.

308 (NEW): The battery according to Claim 307, wherein A is Li.

309 (NEW): The battery according to Claim 307, wherein a is 0.1 to about 6.

310 (NEW): The battery according to Claim 307, wherein a is from about 2 to about 6.

311 (NEW): The battery according to Claim 307, wherein a is from about 3 to about 6.

312 (NEW): The battery according to Claim 307, wherein M comprises two or more transition metals selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and mixtures thereof.

313 (NEW): The battery according to Claim 307, wherein M is M'M'', wherein M' is at least one transition metal selected from Groups 4 through 11 of the Periodic Table; and M'' is at least one element selected from Groups 2, 3, 12, 13, and 14 of the Periodic Table.

314 (NEW): The battery according to Claim 313, wherein M' is selected from the group consisting of Fe, Co, Ni, Mn, Cu, V, Zr, Ti, Cr, and mixtures thereof.

315 (NEW): The battery according to Claim 314, wherein M' is selected from the group consisting of Fe, Co, Mn, Cu, V, Cr, and mixtures thereof.

316 (NEW): The battery according to Claim 314, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

317 (NEW): The battery according to Claim 316, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Ba, Al, and mixtures thereof.

318 (NEW): The battery according to Claim 313, wherein M'' is selected from the group consisting of Mg, Ca, Zn, Sr, Pb, Cd, Sn, Ba, Be, Al, and mixtures thereof.

319 (NEW): The battery according to Claim 307, wherein $0 < x < 3$.

320 (NEW): The battery according to Claim 307, wherein $x = 0$.

321 (NEW): The battery according to Claim 307, wherein $x = 3$.

322 (NEW): The battery according to Claim 307, wherein Z comprises F.

323 (NEW): The battery according to Claim 307, wherein Z is selected from the group consisting of OH, F, Cl, Br, and mixtures thereof.

324 (NEW): The battery according to Claim 307, wherein d is from 0.1 to about 6.

325 (NEW): The battery according to Claim 307, wherein d is from about 2 to about 6

326 (NEW): The battery according to Claim 307, wherein d is from about 3 to about 6.

327 (NEW): The battery according to Claim 307, wherein $b = 2$ and the second electrode comprises a material selected from the group consisting of a metal oxide, metal chalcogenide, carbon, graphite, and mixtures thereof.

328 (NEW): The battery according to Claim 327, wherein the electrolyte comprises a solvent selected from the group consisting of dimethyl carbonate, diethyl carbonate, dipropylcarbonate, ethyl methyl carbonate, butylene carbonate, γ -butyrolactone, triglyme, tetraglyme, a lactone, an ester, dimethylsulfoxide, dioxolane, sulfolane, and mixtures thereof.

329 (NEW): The battery according to Claim 328, wherein the electrolyte further comprises a lithium salt selected from the group consisting of LiAsF_6 , LiPF_6 , LiClO_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiAlCl_4 , LiBr , and mixtures thereof.